

# **EXHIBIT 84**



**MASTER SOLUTION PURCHASE AND SERVICES AGREEMENT**

**BY AND BETWEEN**

**DOMINION VOTING SYSTEMS, INC.  
as Contractor,**

**and**

**SECRETARY OF STATE OF THE STATE OF GEORGIA  
as State**

Dated as of July 29, 2019

Contract No. [●]

and solutions. State reserves the right to approve system configuration, architecture, or functionality that affects the choice or use of the third-party products.

### **3. LICENSE AND AUTHORIZED USE.**

#### **3.1 Grant of License.**

3.1.1 Grant of License. Except as provided elsewhere in this Agreement or an applicable Solution Order, Contractor hereby grants to State a non-exclusive, irrevocable (during the Term), and worldwide license for State and other State Entities to use, install, execute, store, and display the object version of all Contractor Licensed Programs in connection with State's use, operation, or support of the Solution and in accordance with all the terms and conditions of this Agreement. In addition, State, the other State Entities, and/or State Contractors, subject to the restrictions and processes set forth herein, shall be permitted, in connection with the use, operation, or support of the Solution, to: (a) use the Contractor Licensed Programs at any State Site; (b) make and use copies of the Contractor Licensed Programs at each State Site; (c) use the Contractor Licensed Programs for to fulfill the Mandatory Requirements including by providing access at all applicable State Sites to the Contractor Licensed Programs, other than by remote connection; and (d) use and/or copy of the Contractor Licensed Programs for the purpose of creating and using training materials relating to the Contractor Licensed Programs for internal purposes, which training materials may include flow diagrams, system operation schematics, or screen prints from operation of the Contractor Licensed Programs.

3.1.2 License to Source Code Version. The License also includes the right to receive from Contractor and use the source code version of the Contractor Licensed Programs to the extent so provided in Section 3.1.4 and Section 3.2.

3.1.3 Deactivation at State's Request. From time to time, a State Entity may elect to uninstall one or more Contractor Licensed Programs for some period of time. If a State Entity elects to uninstall any Contractor Licensed Program such State Entity shall not be responsible for payment of any further fee applicable to such uninstalled Contractor Licensed Program(s). If a State Entity elects to reinstall any such Contractor Licensed Program(s) (i) the Extended Warranty applicable to such Contractor Licensed Program(s) will recommence as of the date such Contractor Licensed Program(s) is reinstalled and (ii) any such reinstallation by a State Entity will be at no cost to any State Entity other than as provided above.

3.1.4 Rights Upon Contractor Insolvency. All rights and licenses granted under or pursuant to this Agreement by Contractor to State and any State Entities are, and shall otherwise be deemed to be, for purposes of Section 365 (n) of the United States Bankruptcy Code ("**Bankruptcy Code**"), licenses to rights to "intellectual property" as defined under the Bankruptcy Code. Contractor acknowledges that if it, as a debtor in possession or a trustee in bankruptcy in a case under the Bankruptcy Code, rejects this Agreement, then State or a State Entity may elect to retain its rights under this Agreement as provided in Section 365(n) of the Bankruptcy Code. The parties further agree that, in the event of the commencement of any bankruptcy proceeding by or against Contractor under the Bankruptcy Code, State and each State Entity shall be entitled to retain all of such rights under this Agreement. Contractor agrees and acknowledges that enforcement by State or any State Entity of any rights under Section 365(n) of the Bankruptcy Code in connection with this Agreement shall not violate the automatic stay of Section 362 of the Bankruptcy Code and waives any right to object on such basis. Upon rejection of this Agreement by Contractor or the bankruptcy trustee in a bankruptcy case under the Bankruptcy Code and written request of State or a State Entity to Contractor or the bankruptcy trustee pursuant to Section 365(n) of the Bankruptcy Code, Contractor or such bankruptcy trustee shall: (a) provide State or such State Entity the materials that are the subject of the rights and licenses described in this Section 3.1.4 and any Intellectual Property Rights otherwise required to be provided to State or such State Entity under this Agreement, or any agreement supplementary to this Agreement, held by Contractor or such bankruptcy trustee; and (b) not interfere with the rights of State or such State Entity provided in this Agreement or any other agreement supplementary to this Agreement, to the materials that are the subject of the rights and licenses described in this Section 3.1.4, and any Intellectual Property Rights provided under such agreements, including any

right to obtain the materials that are the subject of the rights and licenses described in this Section 3.1.4 and any such Intellectual Property Rights from another party.

3.2 Delivery and Use of Source Code. No later than thirty calendar days from State of Georgia certification, Contractor shall, at its sole expense, (i) place in escrow with NCC Group, Inc., a Virginia corporation (the “**Escrow Agent**”), pursuant to the NCC Group Sourceone Escrow Agreement (Agreement# 46286) by and between Escrow Agent and Contractor dated November 4, 2010 (the “**Escrow Agreement**”), a copy of the Source Code incorporated within the Solution provided to the State Entities under this Agreement and (ii) cause the State to be enrolled as a “Licensee” under the Escrow Agreement. Delivery of such Contractor Licensed Programs under this Agreement will be deemed to include and require delivery of a copy of the Source Code to the Escrow Agent under the Escrow Agreement, together with any updates thereto. State shall be entitled to receive a copy of such Source Code and to use such Source Code to support and maintain the State Entities’ authorized use of the Contractor Licensed Programs, upon the occurrence of a “Release Event” set forth in the Escrow Agreement. If Contractor makes any update to any escrowed Contractor Licensed Program, Contractor shall furnish the Escrow Agent with a corrected or revised copy of the Source Code for such Contractor Licensed Program within the timeframe required by Section 1.2 of the Escrow Agreement.

3.3 Third Party Source Code. Contractor shall identify to State in writing prior to the Effective Date and from time to time thereafter as often as required, any source code for Third Party Licensed Programs that Contractor is not authorized to deliver as part of the Source Code hereunder and for all such source code.

#### 4. Services.

##### 4.1 Configuration Services.

4.1.1 State Solution and Functional Requirements. Contractor acknowledges that State has relied, and will rely on, Contractor’s experience and expertise in installing, implementing, and servicing the Solution purchased under this Agreement. The Solution will, when installed and implemented, meet State’s technology and business requirements including all Functional Requirements. For purposes of this Agreement “**Functional Requirements**” means the technical requirements of State including, where applicable: (a) an identification of all software applications to be run on such Solution (including Licensed Programs provided by Contractor under this Agreement) (collectively, the “**Designated Licensed Programs**”); (b) any performance requirements of the Solution, as applicable (the “**Performance Requirements**”); (c) the anticipated number of users of the Solution and/or Designated Licensed Programs; and (d) details relating to any State systems with which the Solution and Designated Licensed Programs are to interface. Any Functional Requirements described in the Installation Plan, Solution Order, or Services Order shall be incorporated herein.

4.1.2 Contractor System Proposal. If State provides Contractor with Functional Requirements, Contractor shall, at no additional cost to State, analyze such Functional Requirements to determine the minimal amount and type of Solution that Contractor believes State needs to purchase in order to meet the Functional Requirements. Within ten (10) business days of its receipt of the Functional Requirements, Contractor shall deliver to State a written proposal (each a “**Contractor System Proposal**”) which shall thereupon become part of the Guaranteed Functionality and be attached to the applicable Solution Order. The Contractor System Proposal shall detail at a minimum (as applicable): (a) the Solution components required to meet the applicable Functional Requirements; (b) the minimal operating system, network, and third-party software necessary to run the Designated Licensed Programs in conformity with the Functional Requirements; and (c) the estimated cost for such Solution determined in accordance with this Agreement. Nothing contained in the Contractor System Proposal shall obligate State to purchase any Solution or portion thereof.

4.1.3 Attachments to Solution. Subject to the other terms of this Section, in the event State provides Contractor with Functional Requirements for a certain Solution (and obtains confirmation of approval thereof as required below), State shall be entitled to install any attachment, feature, or device to, or install any Licensed Programs, on such Solution without affecting Contractor’s representations and

14.1.2 Authority. (a) It has full power and authority to enter into this Agreement, to grant the rights granted hereunder and to perform its obligations under this Agreement; (b) execution and performance of this Agreement shall not violate any law or breach any other agreement known to Contractor; and (c) Contractor will not assume any obligation or restriction that does or would in any way interfere or conflict with, or would prevent, limit, or impair in any way the performance by Contractor of any of the terms of this Agreement or of the Services.

14.1.3 Liens and Encumbrances. Contractor has good and valid title to the Solution and all Equipment or hardware components provided to the State Entities pursuant to the terms of this Agreement free and clear of any and all liens and encumbrances. All such items will be delivered, and title will transfer, to the applicable State Entity pursuant to Section 2.1.5 free and clear of all liens and encumbrances and State will be entitled to use the Solution and all other Deliverables in accordance with the terms of this Agreement without disturbance.

14.1.4 eRFP Bring Down. Each of the representations, warranties, guarantees, certifications, and similar assurances contained in Contractor's eRFP Response were true and correct in all respects as of the date of submission of Contractor's eRFP Response and shall be true and correct in all respects on and as of the Effective Date with the same force and effect as if made at and as of the Effective Date.

14.1.5 Non-Infringement. As of the Effective Date and throughout the Term:

(a) None of the Solution, Services, or other Deliverables, nor any portion or component thereof, nor State's use or possession of any of the foregoing as permitted under this Agreement, shall infringe or violate any right, title, or interest (including any Intellectual Property Right) of any third party.

(b) Contractor and/or all Contractor Personnel shall be the sole authors of the Solution and any Revisions thereto and Contractor has and shall have full and sufficient right, title and interest (including all Intellectual Property Rights) in and to the Solution.

(c) No claim of infringement has been threatened or asserted, or is pending against Contractor (or insofar as Contractor is aware, against any entity from which Contractor has obtained such rights) (the warranties set forth in clauses "(a)", "(b)", and "(c)" collectively the "**Non-Infringement Warranty**").

14.1.6 Disabling Procedures. The Solution, State-Specific Enhancements and other Deliverables and each module or component and function thereof, and to the maximum extent applicable, the Services performed hereunder, do not contain any "back door," "time bomb," "Trojan horse," "drop dead device," or other similar software routines or components designed to permit access or use of any State Entities' computer systems by Contractor or a third party or to disable or delete any Solution or any data, computer hardware, or software operated or maintained by any State Entity;

14.1.7 Viruses. The Licensed Programs, State-Specific Enhancements and other Deliverables and each module or component and function thereof, and to the maximum extent applicable, the Services performed hereunder, do not contain any Virus and prior to delivery to the State Entities, Contractor shall have used up-to-date, industry-accepted, corporate-enterprise, quality virus detection products to scan for and ensure the absence of Viruses. Contractor shall take all commercially reasonable steps to ensure that no Viruses are coded or introduced into any other State Entities' systems or into the systems used to provide the Services or operate the Solution;

14.1.8 EAC Certification. All relevant components of the Solution, any Upgraded Solution, and all Software, Equipment, and other components forming a part thereof for which certification by the U.S. Election Assistance Commission ("**EAC**") is available have been certified by the EAC as of delivery of the Solution to the State. Without limiting the foregoing, if at any time during the Term, the Solution or any component (including Software and Equipment) forming a part thereof for which EAC certification is available ceases to be certified by the EAC, Contractor shall immediately notify State and, if Contractor has, or has made available a non-infringing, EAC certified, version of the offending component to its

18.74 **"Performance Levels"** is defined in Section 8.1.

18.75 **"Performance Requirements"** is defined in Section 4.1.1.

18.76 **"Person"** means any individual, corporation, limited liability company, partnership, limited partnership, business trust, or other entity of any nature.

18.77 **"Pilot Election"** means the pilot election to be administered on November 5, 2019 in up to 6 Counties (exact Counties to be determined by mutual agreement), including the coding of election database (and additional training needed in connection therewith), training of personnel including poll-workers of the Counties hosting the Pilot Election, logic and accuracy testing at each of the participating State Sites, election day support at the participating State Sites, and post-Pilot Election auditing and validation of results.

18.78 **"Privacy Regulations"** is defined in Section 11.5.

18.79 **"Project Manager"** is defined in Section 6.4.

18.80 **"Proprietary Materials"** means: (a) all runtime and non-runtime machine-readable, executable object code, human readable source code, in any language whatsoever (including HTML, CGI, XML, Java, Visual Basic and C) and on any operating or database platform, system or environment whatsoever (including Windows, Unix, Linux, DB2, J2EE, Oracle, SQL or any mainframe) as well as all computer system designs, user interfaces, commented source code, explanations, flow charts, schematics, algorithms, subroutine descriptions, class and object descriptions, memory and overlay maps, statements of principles of operations, architecture standards, data flow descriptions, class, base-class and sub-class descriptions, data structures, control logic and other computer formatting, programming or scripting code; (b) all inventions and discoveries, whether or not patentable, reduced to practice or recorded in a medium; (c) all published and unpublished works of authorship including audio-visual works, "look and feel," artwork, illustrations, images, photographs and printed or graphic matter; (d) all tangible materials, including all prototypes, models, designs, files, templates libraries (.dll or otherwise), tools, graphics, screen displays and/or their other user interface components or "look and feel" (as that phrase is understood and applied under Title 17 U.S.C.), creative content, algorithms, formulae data, information, reports and technologies; (e) business and technical requirements and system designs and architectures in any form or medium.

18.81 **"Receiving Party"** is defined in Section 11.1.

18.82 **"Regulated Information"** is defined in Section 11.5.

18.83 **"Regulation Compliant"** is defined in Section 14.1.13.

18.84 **"Renewal Period"** is defined in Section 16.1.

18.85 **"Residuals"** means any information in intangible form that is not protectable under copyright or patent law, or protected as a trade secret or other intellectual property right including any ideas, concepts, know-how or techniques contained therein.

18.86 **"Revision"** is defined in Section 2.3.

18.87 **"Security Breach"** means (i) unauthorized physical or technical access to any Contractor Computer System; (ii) any circumstance that may constitute or result in, any unlawful or unauthorized acquisition, access, loss, theft, use or disclosure of any Confidential Information, Regulated Information, or State Data in the possession of any of the Contractor Parties; (iii) any breach or attempted breach of the security of any Confidential Information, Regulated Information, or State Data, or of any of the controls of any of the Contractor Parties intended to protect the same; or (iv) any other circumstances or events that

could compromise the privacy or security of any of the Confidential Information, Regulated Information, or State Data in the possession of any of the Contractor Parties.

18.88 **“Service Level Agreements”** means the service levels to be maintained by Contractor throughout the Term as more fully described in a Services Order or Services Order Attachment.

18.89 **“Services”** is defined in Section 2.1.1.

18.90 **“Services Order”** means a written instrument signed by an authorized signatory of a State Entity and an authorized representative of Contractor substantially in the form of Exhibit C. Such Services Order will include any requirements, considerations, or objectives which differ from the general provisions of this Agreement and not otherwise address in a Solution Order; for example, the intent of the parties with respect to any rights to particular developments (intellectual property), specific Milestone Events and/or Milestone Dates and/or quality and warranty considerations, special fees, and all such other particular objectives, considerations, or requirements in conjunction with the delivery of Services by Contractor. Except as otherwise specifically provided in such Services Order, each Services Order shall be governed by the terms of this Agreement.

18.91 **“Services Order Attachment”** is defined in Section 4.4.

18.92 **“Site Specifications”** means the reasonable environmental specifications as relate to utilities, temperature, and humidity conditions, which Contractor suggests are maintained at the State Sites for efficient operation and use of the Solution at those State Sites.

18.93 **“Software”** is defined in Section 2.1.1.

18.94 **“Solution”** is defined in Section 1.1.

18.95 **“Solution Order”** is defined in Section 2.1.1.

18.96 **“Source Code”** means a copy of the complete source code corresponding to the object code of a given Deliverable, as applicable, plus any pertinent commentary or explanation (including any and all explanations, flow charts, schematics, algorithms, subroutine descriptions, class and object descriptions, memory and overlay maps, statements of principles of operations, architecture standards, data flow descriptions, class, base-class and sub-class descriptions, data structures, and control logic) that may be necessary to render such source code understandable and useable by a reasonably trained computer-programming expert who is generally familiar with information technology systems in the financial and banking sectors. The source code shall include all Documentation, statements of principles of operation, and schematics, all as necessary or useful for the effective understanding and use of such source code. Insofar as the development environment employed for the development, maintenance, and implementation of any source code includes any device, programming, or Documentation not commercially available to State on reasonable terms through readily known sources other than Contractor, the source code shall include all such devices, programming, or Documentation. The foregoing reference to "development environment" is intended to apply to any programs, including compilers, "workbenches," tools, and higher-level (or "proprietary") languages, used by Contractor for the development, maintenance, and implementation of the applicable source code.

18.97 **“Special Programs”** is defined in Section 2.1.1(ii).

18.98 **“Specifications”** means the technical and business requirements of State described in a given Solution Order or Services Order, including all technical detail and design specifications, functionality matrices, requirements definition, request for proposals, proposals, gap analysis, requirements for project management, relevant project considerations, objectives, Milestone Events and/or Milestone Dates, and Performance Levels set forth therein.



18.99 **"Specifications Warranty"** is defined in Section 14.1.12(b).

18.100 **"State"** is defined in the initial paragraph of this Agreement.

18.101 **"State Contractor"** means any individual, corporation, limited liability company, partnership, limited partnership, business trust or other business organization duly recognized under the laws of its applicable jurisdiction that provides services to State or any other State Entity.

18.102 **"State Data"** is defined in Section 12.3.

18.103 **"State Entity"** means the State and the Counties.

18.104 **"State Relationship Managers"** is defined in Section 6.1.

18.105 **"State Site"** means the 159 locations of the State Entities at which the Solution is to be implemented and such other locations as may be designated by State from time to time.

18.106 **"Support Services"** is defined in Section 2.1.1(iii).

18.107 **"SVS"** is defined in Section 1.1.

18.108 [Reserved].

18.109 **"Term"** is defined in Section 16.1.

18.110 **"Termination Assistance"** is defined in Section 16.6.

18.111 **"Termination Assistance Period"** is defined in Section 16.7.

18.112 **"Third Party Licensed Programs"** means those Licensed Programs identified on the applicable Solution Order as being licensed by a Contractor Solution Partner.

18.113 **"Third Party Materials"** means all Proprietary Materials the Intellectual Property Rights for which are owned, by an individual or entity other than State Entities) and Contractor (including Contractor Affiliates).

18.114 **"Trade Secrets"** means any business, scientific or technical data, information, design, process, procedure, formula, or improvement that is commercially valuable to either party and is not generally known in the industry. Each party acknowledges that the Trade Secrets of the other party have been developed by that party at great expense and with the considerable effort of skilled professionals. Each party also acknowledges that the Services and Deliverables under this Agreement may of necessity incorporate Trade Secrets.

18.115 **"Training Services"** is defined in Section 4.2.

18.116 **"Transfer Control Laws"** is defined in Section 7.3.2.

18.117 **"Transition Plan"** is defined in Section 16.6.

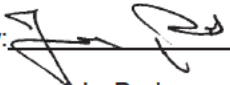
18.118 **"Upgraded Solution"** is defined in Section 2.3.

[This space intentionally left blank; signatures appear on following pages.]



*Master Solution Purchase and Services Agreement*

**IN WITNESS WHEREOF**, the parties have caused this Master Solution Purchase and Services Agreement to be executed by their duly authorized representatives as of the date first written above.

<b>STATE OF GEORGIA OFFICE OF THE SECRETARY OF STATE</b>	<b>Dominion Voting Systems, Inc.</b>
By: _____	By:  _____
Name: _____	Name: <u>John Poulos</u>
Title: _____	Title: <u>President &amp; CEO</u>
Date: _____	Date: <u>7/29/2019</u>
By: _____	
Name: _____	
Title: _____	
Date: _____	

Master Solution Purchase and Services Agreement

**EXHIBIT B**

To Master Solution Purchase and Services Agreement

**SOLUTION ORDER**

THIS SOLUTION ORDER is dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ ("***Solution Order Effective Date***") and is subject to the terms of the Master Solution Purchase and Services Agreement (the "***Agreement***") dated as of \_\_\_\_\_, 20109 by and between \_\_\_\_\_ ("State") and \_\_\_\_\_ ("***Contractor***"). Unless otherwise defined herein, all capitalized terms used herein have the same meanings as is set forth in the Agreement, which is hereby incorporated by reference. The undersigned State Entity hereby orders delivery for the following pieces of Solution from Contractor. Contractor agrees to deliver the items ordered herein in accordance with the Agreement and in compliance with all Applicable Laws including with the provisions of O.C.G.A. Title 21, as amended and the State of Georgia Election Board and Secretary of State Rules contained in Sections 183 and Sections 590 of the Georgia Administrative Code respectively.

**EQUIPMENT, SOFTWARE, DELIVERY DATES AND PURCHASE PRICE(S)****1. Democracy Suite (EMS) Software description**

Democracy Suite is an Election Management System (EMS) that supports all ImageCast voting channels: early votes, vote by mail votes, Election Day votes from touchscreen ballot marking devices (ICX) and Scanner, and Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA) votes, from a single comprehensive database.

The structure of the election files, as well as the content of the iButton security keys, is bit-level sensitive with regards to accuracy and precision. This means that a single bit change can influence system behavior. The structure of these interfacing entities is dependent on the election domain business logic implemented within the system. Therefore, within the EMS EED application, election files and iButton security keys can only be created when the election project is in the "ballot generated" state.

From an accuracy point of view, CRC checks are implemented. From a security point of view, election files utilize SHA256 (keyed hash HMAC) or digital certificates and AES encryption for data integrity and confidentiality. The figure below presents an overview of the EMS interfaces, focusing on the Democracy Suite internal and external entities.



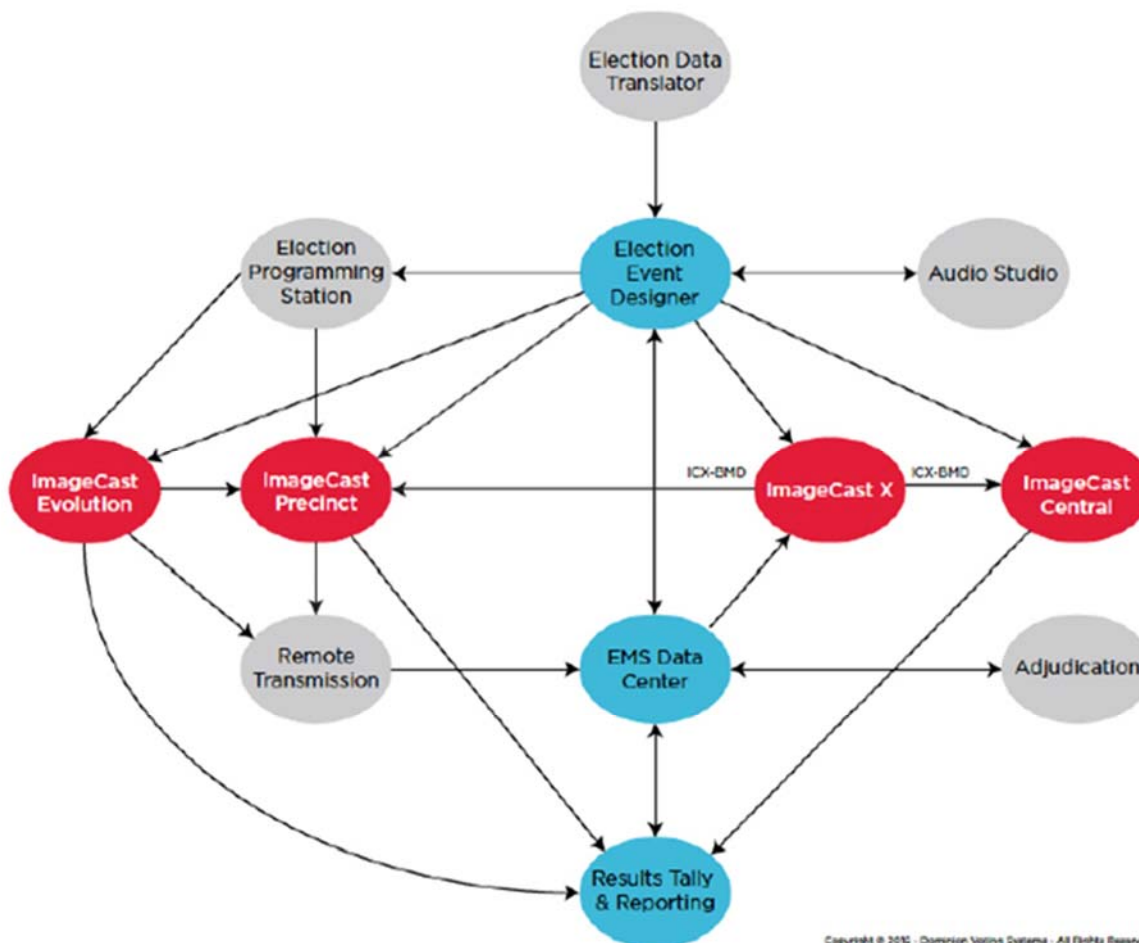
- Microsoft Visual J#
- Microsoft Visual C++ 2013 Redistributable Package
- Microsoft Visual C++ 2013 Redistributable Package (64bit)
- Microsoft Visual C++ 2015 Redistributable Package (32bit)
- Microsoft Visual C++ 2015 Redistributable Package (64bit)
- Java Runtime Environment
- Microsoft SQL Server 2016 Standard -(Microsoft SQL Server Management Tools)
- Cepstral Voices
- Arial Narrow Fonts

- Microsoft Visual J#
- Microsoft Visual C++ 2013 Redistributable Package
- Microsoft Visual C++ 2015 Redistributable Package 64bit
- Java Runtime Environment
- Maxim iButton Driver
- Adobe Reader
- Microsoft Access Database Engine
- Open XML SDK 2.0 for Microsoft Office
- Arial Narrow Fonts

- Dell Latitude T3420 Laptop
- Microsoft Visual J#
- Microsoft Visual C++ 2013 Redistributable Package
- Microsoft Visual C++ 2015 Redistributable Package 64bit
- Java Runtime Environment
- Adobe Reader



## DEMOCRACY SUITE® - Data Flow between System Components



The Democracy Suite EMS consists of the following Dominion Software modules:

1.1 Election Event Designer (EED). EED application is used for the definition and management of election event. EED contains all ballot content utilized to define election projects. Each election project is represented as an instance of the election domain database with associated set of election project file. The definition of the election project can be initiated by importing the election data through the Election Data Translator (EDT) module from external systems that contain the necessary relational data to build a ballot or by defining election project entities without importing external data. It is important to note that an election project initiated through EDT can be further modified within the EED Client Application. The EED module can generate two types of paper ballots:

- Proofing ballots – ballots produced to allow election project stakeholders to proof ballot content and styling. These ballots cannot be processed by the ImageCast as they don't have proper ballot barcodes. These ballots are overprinted with the text "Proofing Ballots – date/time".
- Official ballots – represent production ready, press ready ballots in PDF format with barcodes and without any overprinting.

*Master Solution Purchase and Services Agreement*

- 1.2 **Results Tally and Reporting (RTR).** RTR application is used for the tally, reporting and publishing of election results. For the RTR module, inputs represent encrypted and signed election result files, log files and scanned ballot images with Dominion's patented AuditMark, produced by the ImageCast Precinct and Central tabulators (PNG and TIFF images). Outputs represent a variety of election result reports, as well as auditing information (XML, HTML, CSV, MS Excel and PDF formats).

The program uploads the result files into the results tally module, and consolidated results are verified, tabulated, and published. Once the vote data is uploaded into the result tally module, the flow of results to the public and media can be controlled.

RTR allows election officials to review the results before releasing them, and the system provides a number of reporting methods, including but not limited to summary and precinct-level (Statement of Votes Cast) result reports. In addition to the static, pre-defined reports found in most reporting systems, RTR summary and precinct-level reports use the Microsoft SQL Server reporting services engine to offer maximum flexibility to user. These reports feature a variety of configurable options and filters, including detailed breakdowns of provisional ballots cast, ballots cast during early voting, on Election Day, and by mail.

- 1.3 **Adjudication.** The adjudication module is used to review and adjudicate ImageCast ballot images. The application uses tabulator results files and scanned images to allow election administrators to electronically adjudicate ballots requiring review based on exception criteria. Exceptions include overvotes, undervotes, blank contests, blank ballots, write-in selections, and marginal marks. After a ballot is adjudicated, the ballot image is appended with a record of that decision including the user's name, action taken by the user, and date and time of the action. This adjudication AuditMark is appended to the ballot image under the original AuditMark, which was manifested during tabulation.
- 1.4 **Audio Studio (AS).** Audio studio uses Cepstral, a third-party text-to-audio synthesizer, to automatically generate audio ballots for the ImageCast X Ballot Marking Device. The State also has the option to import human-recorded audio, with or without the use of Audio Studio. Pronunciation may be modified using the Cepstral's Swifftalker application. The system outputs audio ballots (PNG images, SPX audio files and XML definition files), definition reports (XML, Excel or HTML files), and election definition files required to program the ImageCast X.
- 1.5 **Automated Test Deck (ATD).** ATD is an application used to create test decks for running Pre-Logic and Accuracy Test with marking pattern requirements. The application can be used to access the election database and produce a set of print-ready PDFs and results tables for testing.

## 2. **EMS Hardware description, including third-party software components.<sup>1</sup>**

Description
<b>EMS STANDARD SERVER</b> DELL POWEREDGE R640 RACK SERVER - 16GB RAM, 6 X 1.2TB HDD, WINDOWS SERVER 2012 R2, MICROSOFT SQL SERVER 2016 STANDARD
SQL SERVER 2016 LICENSE W/5 CALs
VOICE SYNTHESIS SOFTWARE LICENSE, ALLISON - ENG - CEPSTRAL 6.2

<sup>1</sup> All equipment is subject to change dependent upon product availability. An equivalent model, certified by the State of Georgia, may replace products that are end of life.



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Description
VOICE SYNTHESIS SOFTWARE LICENSE, ALEJANDRA SPA - CEPSTRAL 6.2
VOICE SYNTHESIS SOFTWARE LICENSE - SAVE TO FILE FOR WINDOWS
VOICE SYNTHESIS SOFTWARE LICENSE - AUDIO DISTRIBUTION LICENSE
VOICE SYNTHESIS SOFTWARE LICENSE - CONCURRENT PORT FOR WINDOWS
ANTI-VIRUS - AVAST! ENDPOINT PROTECTION SUITE, 5-PACK LICENSE
POWERCONNECT X1026 24 PORT ETHERNET SWITCH
SERVER UPS: UPS 1500VA - 2U
SERVER RACK: 12U
24" SWIVEL CAPABLE MONTIOR
VGA CABLE – MALE TO MALE, 6 FT
PATCH CABLE, CAT6, 25 FT., BLUE
<b>EMS EXPRESS SERVER</b> DELL PRECISION T3420/3430 WORKSTATION - 16GB RAM, 2X 500GB HDD, RAID 1, WIN 10 PRO, KB & MOUSE
8 PORT SWITCH X1008
24" SWIVEL CAPABLE MONITOR
IBUTTON PROGRAMMER KIT
COMPACT FLASH CARD READER - KINGSTON
VOICE SYNTHESIS SOFTWARE LICENSE, ALLISON - ENG - CEPSTRAL 6.2
VOICE SYNTHESIS SOFTWARE LICENSE, ALEJANDRA SPA - CEPSTRAL 6.2
VOICE SYNTHESIS SOFTWARE LICENSE - SAVE TO FILE FOR WINDOWS
VOICE SYNTHESIS SOFTWARE LICENSE - AUDIO DISTRIBUTION LICENSE
VOICE SYNTHESIS SOFTWARE LICENSE - CONCURRENT PORT FOR WINDOWS
<b>EED/RTR/ADJ - CLIENT</b> DELL PRECISION T3420/3430 (INTEL I5-6500, 8GB RAM, 500GB HDD, W10X64PRO) W/24" MONITOR, KB & MOUSE
SINGLE IBUTTON PROGRAMMER WITH USB ADAPTER, IBRW-100A
USB TO 1-WIRE/IBUTTON ADAPTER
PATCH CABLE, CAT6, 25 FT. , BLUE
SMART CARD READER / WRITER
COMPACT FLASH CARD READER - KINGSTON
SQL 2016 USER USER CALs



**3. ImageCast X -Prime Touchscreen Ballot Marking Device (ICX-BMD)**

- 3.1 Application: ImageCast X-Prime BMD is a touchscreen in-person voting device and ballot marking device. Voting sessions are initiated on the tablet by either a smart card or the entry of a numeric code based on activation. The ballot is loaded directly onto the standalone device. All voting activity is performed at the tablet, including accessible voting. Accessible voting interfaces connect to the tablet via an Audio Tactile Interface or ATI. For all modes of voting, after the voter reviews the ballot selections, a paper ballot is created for the voter from a printer in the voting booth. The printed ballot contains a written summary of the voter's choices, as well as a 2D barcode which is read by Dominion's ImageCast Precinct or Central tabulator. No votes are stored on the ImageCast X-BMD unit. All votes can be tabulated and stored both the ImageCast Central and Precinct Tabulators.
- 3.2 Components: ImageCast X-Prime BMD is composed of a 21.5" Avalue touchscreen, Android OS 5.1, DC 19V input, HP LaserJet Pro M402dne laser printer.
- 3.3 Additional included items: Three (3) ICX smartcards (to be used for activation, pollworker or technician), battery, 6' cable and 8GB flash drive.

**4. ImageCast Precinct Tabulator (ICP)**

ImageCast Precinct Scanner and Tabulator is an optical scan ballot tabulator used to scan marked paper ballots, interpret voter marks on the paper ballot, communicate these interpretations back to the voter and upon voter acceptance, deposits the ballot in the ballot box. The ImageCast consists of the following:

- 4.1. Two (2) optical imaging scanners for creating a duplex scanned image of each side of the ballot. Ballots can be fed in all four (4) orientations.
- 4.2. Linux Operating System.
- 4.3. Two memory cards ports for storage capabilities. Two (2) 8GB memory cards are provided and located behind two securable doors (Administrator Door and Pollworker Door).
- 4.4. An integrated interactive electronic display in the form of an ultra-high contrast graphical color 5.7" LCD screen, and a built-in touch screen for administration purposes.
- 4.5. An internal 3" thermal printer and one (1) 3" paper roll for generating reports.
- 4.6. Two (2) administrative security key (iButton) used with an integrated receptacle (physically attached to the top of the unit and electrically connected to the motherboard) used for a variety of verification and security tasks such control, data confidentiality and integrity functions.
- 4.7. A motorized paper feed mechanism for detecting and moving the ballot within the scanner. Ballots used with the ImageCast must be 8.5" wide by a variable length (11", 14", 17" and 22"). The paper feed mechanism is physically capable of moving the ballot forward into the machine, across image sensors, enabling complete image capture of both sides of the ballot.
- 4.8. Power supply module uses 120 Vac, 60 Hz, one phase power. It has a power consumption of 0.07 Amps at 120 Volts AC.
- 4.9. An internal battery which is rated to provide two-and-a-half (2.5) hours of normal use in the absence of AC power. In addition to internal 2.5 hours battery an internal 6 hours battery option is also available. There is also a connection for an external 12VDC SLA battery.

- 4.10. Patented functionality known as the AuditMark. For each ballot scanned and accepted into the unit, a corresponding ballot image is created and stored for audit purposes. The image consists of two parts described below.

- The top portion of the image contains a scanned image of the ballot.
- The bottom portion consists of a machine-generated text showing each mark that the unit interpreted for that particular ballot. This is referred to as the AuditMark.

**5. ImageCast Central Scanner (ICC)**

The ImageCast Central Scanner consists of a commercial off-the-shelf digital scanners configured to work with the ImageCast Central Software for high speed ballot tabulation. Each ImageCast Central Scanner includes the following components:

- 5.1. Canon DR-G1130 high speed document scanner
- 5.2. ImageCast Central Software including third party Twain software
- 5.3. DELL 7450 Computer 24" Touchscreen DELL Optiplex AIO 3050 Touchscreen
- 5.4. iButton Security Key
- 5.5. iButton Programmer and iButton Key Switch & Cat5 RJ 45 Cables used with Democracy Suite to transfer security and election information to the iButtons for use with the ICC.
- 5.6. Patented functionality known as the AuditMark. For each ballot scanned and accepted into the unit, a corresponding ballot image is created and stored for audit purposes. The image consists of two parts described below.
  - The top portion of the image contains a scanned image of the ballot.
  - The bottom portion consists of a machine-generated text showing each mark that the unit interpreted for that particular ballot, known as the AuditMark.

**6. ImageCast Molded Plastic Ballot Box**

A textured molded plastic ballot box per ImageCast Precinct unit. The ballot box is made of a three (3) compartments, custom designed for use with the ImageCast Precinct.

- 7. Voting Supply Carriers.** Design and manufacture mobile Voting Supply Carrier that will store, secure and transport voting equipment and will act as a mobile vote center.

**8. System Security Description**

Dominion implements security protocols that meet or exceed EAC VVSG 2005 requirements. All of Dominion's security protocols are designed and implemented to stay current with the rapidly evolving EAC security requirements set forth by various iterations of the VVSG. Dominion's security technology is unprecedented insofar as it takes into account every aspect and every component of the Democracy Suite platform. This includes – but is not limited to – the full encryption of election projects, iButton security keys, memory cards, election data, software applications, and elections results files. In addition, Dominion developed a custom ballot authentication system built around an secure ballot paper stock and in-tabulator authenticators.

Democracy Suite integrates a role-based access control system for all software and hardware components. Each user accessing the system is the member of one of the predefined or custom-made roles. Each role has its own set of permissions, or actions that users of that role are allowed to perform. This access control approach provides authentication and authorization services and can be granular according to the jurisdiction's needs and organization. Complete

user and role membership management is integrated within the Democracy Suite EMS Election Event Designer client module.

The Democracy Suite EMS platform implements role-based user management for provisioning access control mechanisms on each election project. Managing access control policies is integrated within the User Management activity of the EMS EED module. This activity is permitted only for users with administrative privileges.

Democracy Suite utilizes hardware- based security tokens (iButton security keys) in the process of access control for ImageCast Precinct tabulators. These password paired hardware tokens contain data encryption information used in the voting process (encryption and signing keys). Without a valid security token, and paired access password, the administrative functions of election tabulators are effectively locked.

All of these activities and controls, and more described below in response to specific section requirements, are integrated within the Democracy Suite platform. Dominion utilizes authentication and authorization protocols that meet EAC VVSG 2005 standards. In addition, Dominion's solution relies on industry-standard security features to ensure that the correct users based on a user role or group are granted the correct privileges.

#### 8.1 Password configurations

Proper password management relies on multiple activities and controls, namely:

- Input data validation
- Data quality
- Utilization of one-way (hash) cryptography
- Computer generated passwords for greater entropy and protection from dictionary attacks
- Different password strength profiles for different user levels
- Utilization of hardware tokens for storing user credentials (two-level authentication security: something you know and something you have)
- User state machine (initial, active, inactive)

The system does not enforce aging or complexity, but Dominion recommends establishing best practices that meet State's requirements.

#### 8.2 Authentication configuration

To protect any modification of software by malicious users, the Democracy Suite Election Management System integrates the Microsoft .NET Framework code signing process, within which, Dominion digitally signs every executable and library (DLL) during the software build procedure. After the installation of Election Management software, only successfully verified EMS software components will be available for use. Digital signature verification is performed by the .NET Framework runtime binaries. If a malicious user tries to replace or modify any EMS executables or library files, the digital signature verification will fail and the user will not be able to start the EMS application.

#### 8.3 Encryption configurations for both data at rest and data in motion

Data generated by the Democracy Suite platform is protected by the deployment of FIPS-approved symmetric AES and asymmetric RSA encryption. The Democracy Suite Election Management System uses these techniques to encrypt election files prior to their use on ImageCast tabulators. Once the polls have been closed, the ImageCast tabulators encrypt all of the results files prior to transmitting them back to EMS.

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SHA-256 hashes are used for all data integrity and verification. Should an intrusive process or altering of any file occur, hash values will be, in turn, altered as well. Any presence of an intrusive process will be detected, as the hashes of any altered data will not match the value initially determined.

For communication channels (as well as data storage) a combination of security techniques for data integrity, authenticity and confidentiality is implemented. Democracy Suite integrates AES or RSA encryption algorithms for data confidentiality, along with SHA-256 and HMAC digital signatures for data signing (data authenticity and integrity).

		Mode 1- Symmetric Crypto	
File Type	Storage Place	Confidentiality	Integrity
Election files (ICP) and election database (ICE), DCF (ICP) and MBS (ICE), result files (ICP/ICE)	NAS and Compact Flash	AES-128/256	HMAC (SHA-256)
Reports and Logs	NAS and Compact Flash	AES-128/256	HMAC (SHA-256)
Ballot Images	NAS and Compact Flash	-	HMAC (SHA-256)
Ballot Layout Definition (XML)	NAS and Compact Flash	-	HMAC (SHA-256)
Official Ballots	NAS	X.509 Digital Certificate	
User Credentials	iButton	HMAC (SHA-256)	HMAC (SHA-256)

## File Type to Security Algorithmic Mappings

8.4 Logging/Auditing capabilities

From the initial state of the election project, until the deactivation state, the EMS system maintains an activity log within the EMS Database. This activity log contains every action that any of the users have performed within the system and represents a detailed audit log that can be analyzed and printed in the form of an audit report. The audit record information cannot be modified or permanently deleted using the EMS client applications. It can, however, be exported for archiving purposes as part of the record retention policy. During the voting, ImageCast devices keep an activity audit log which tracks events happening on the device itself. Logs are exportable in text format.

8.9 Secure Development Process

All software programs satisfy recommended coding standards, as well as code styling guidelines as required by EAC VVSG standards. Automated code review processes are in place, that verifies compliance with industry accepted coding standards for programming languages used. In addition, proper system and software hardening procedures are clearly defined and regularly tested. Data integrity and confidentiality is also implemented according to NIST defined and FIPS validate procedures and algorithms.

**9. KNOWiNK Electronic Pollbook**

The KNOWiNK Poll Pad solution provides a seamless electronic voter check-in and verification process for election authorities across North America. Poll Pad is a secure Apple iPad application requiring no appendages for operation.

- Process voters in approximately 30 to 45 seconds; mitigate long lines with fast and secure voter look-up.
- Built-in election management and reporting tools; elections can be finalized and submitted within hours of election close.
- Customizable workflow presents required steps according to each jurisdiction's requirements and preferences.
- Improved accuracy and reduced preparation time and storage requirements with the elimination of paper logs.
- Poll workers or voters cannot leave the application without a password, preventing user error, a line slow-down, or creating a potential security issue.

The Poll Pad components include the following:

- iPad tablet - The iPad has a touchscreen/keyboard and a shockproof clear case. The iPad has a battery life of approx. 10 hours. Make: Apple | Model: MP2FLL/A
- Encoder/iOS Reader - The Mfi certified lightning port contact card reader connects securely to the iPad lightning port and include a micro USB cable. Make: FEITAN Technologies | Model: iR301
- iSync Drive - KNOWiNK's secure proprietary removable memory device, the iSync flash drives. Make: KNOWiNK | Model: iSD-110
- Stand for iPad - The iPad stand is durable and user friendly. Make: AI Data | Model: i360
- Scanning tray - KNOWiNK'S patented scanning trade scans barcodes on voter ID cards or state identification cards. Make: KNOWiNK | Model: ISP103b-KN2-1
- Styluses - Poll workers and voters may use the styluses or their finger for the iPad's capacitive touch screen. Make: AI Daata | Model: ISP-1010-KNO
- Carrying case - Shockproof weatherproof foam-fitted case. Make: Nanuk | Model: 910


**10. Implementation Services****10.1 Implementation Phase Periods**

The implementation period will consist of a sixteen-month implementation; Phase One includes a pilot of 6 counties and the GA Secretary of State office for the November 2019 General elections. Phase Two includes the 2020 Presidential Preference Primary and all Primary, General, Runoff and Special elections for all 159 counties in Georgia as well as the state in the 2020 Election cycle.

**Exhibit I**

To Master Solution Purchase and Services Agreement

**FORM OF DELIVERY & ACCEPTANCE NOTICE**

 <b>On-Site Acceptance Test Checklist</b> <b>ICX Prime – ImageCast X®</b>		COUNTY: _____ DATE: _____ MODEL: _____ SW VERSION: _____ SERIAL NUMBER: _____		
STEP NO.	STAGE DESCRIPTION	DETAILS	P A S S ✓	COMMENTS <i>Please list any anomalies or issues and resolution.</i>
<b>Unpacking &amp; Inspection Stage</b>				
1	Physical Inspection	Ensure the system is properly packed		
2		Ensure that the following items are present in the packaging box: 1 Inspect the machine for any external damage 2 Inspect the screen 3 Inspect the stand 4 Inspect the card reader slot 5 Open the four external doors and check for damage to ports 6 Verify the presence of the power cord(10') and the external battery		
3		Place ICX and HP Printer on flat surface		
4		Connect AC Power Supply to ICX ( bottom-right corner)		
5		Connect Power Cable to rear of HP Printer		
<b>Power Up and System Status Verification (with Test CF cards)</b>				
	Maintenance Diagnostic	Turn on Printer ( Front of Unit)		
		Turn on ICX Prime( bottom-right door)		
		ICX unit launches the ICX application by default		
		Check battery charging status ( top right tool bar)		
<b>Verify Android Version/Kernel Version</b>				
	Maintenance Diagnostic (Continue)	Insert Technician Card: 1 Enter Technician Pin and Select Login 2 Confirm and modify the date and time 3 Select Android Settings 4 Select About Tablet 5 Verify Android Version 6 Verify Kernel Version Date 7 Select home		
		Check functionality of all USB ports: A Unplug ATI cable from USB port and plug into each USB port not being use B There are a total of 6 ports: 4 ports inside top left door, 2 ports inside top right door C Light blinks when plugged in Repeat for each USB port D When finished, plug ATI cable back into original USB port		
	Functional Testing	Load Elections Files On USB ( PG ICX dat file) Load Election file to ICX: 1 Insert Technician card 2 Enter Technician Pin and Select Login 3 Select Load Election Data 4 Select the PG ICX dat file 5 Select the select option 6 Select Copy 7 Select OK 8 Select Result Location to Prime (Drop down menu) 9 Select Apply 10 Select OK 11 Remove Technician Card		
		Open Election Polls: 1 Insert Pollworker Card 2 Enter Pollworker Pin and Select Login 3 Select the appropriate tabulator (Drop down menu) 4 Select OK 5 Check the box to enable AVS Controller 6 Check the box to enable Manual Session Activation 7 Select Yes 8 Select OK 9 Remove Pollworker Card		



		Activate a Manual Voter Session: 1 Insert Pollworker card 2 Select the Activation Ballot tab 3 Enter Activation Code 4 Select Next 5 Select Regular 6 Voting Session will start 7 Remove Pollworker card	
		Activate a Manual Voting Session with Audio: 1 Insert pollworker Card 2 Select the Activation Ballot tab 3 Select Enable AVS controller check box 4 Select Next 5 Select Regular 6 Voting Session will start, LED will turn yellow 7 Remove Pollworker Card	
		Vote and cast Audio ballot: 1 Select Vote in English 2 Select ATI 3 Make Voting selections with ATI and cast ballot 4 Confirm selections are heard on headphone 5 Select more (top right corner) 6 Cancel Activation	
		Vote and Cast Ballot: 1 Select Vote in English 2 Make voting selections and cast ballot 3 Print ballot, confirm printed selections 4 Insert ICX ballot into ICP2 Tabulator 5 Confirm ICP2 has accepted ICX Ballot	
		Close polls: 1 Insert Pollworker card 2 Enter Pollworker Pin and select Login 3 Select Close poll and select yes 4 Report Prints 5 Select OK 6 Remove Pollworker card	
		Re-zero results: 1 Insert Technician card 2 Enter Technician pin and select Login 3 Select Re-zero 4 Select Yes 5 Re-enter Technician pin 6 Confirm all results are deleted 7 Select OK	
		Reset Machine: 1 Select Clear All Election Data 2 Select Yes 3 Enter Technician pin 4 Confirm selections are heard on headphone 5 Confirm all election data, results and audit logs are deleted 6 Select OK	
		Power off Unit (bottom right corner)	